

## Theory and Research into Practice: Using Self-Determination Theory to Analyze Gamification and Motivational Affordances in Serious Games for Health Education

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In serious games for health education, regulation styles in gamification help the player achieve goals through behavioral motivations that may not be apparent in an educational activity. These regulation styles are referred to as motivational affordances and might be widely employed in gamification or game-like systems that motivate users to engage in play a “gameful-type” experience. Gamification is defined as the application of game mechanics (point scoring, competition, rules, etc.) and game design techniques in order to engage and motivate players to achieve goals. Zhang defined affordance as “the actionable properties between an object and an actor” which determine how they can support one’s motivational needs.

Are there common gamification and motivational affordances in serious games that prove to be effective in game play on the topic of diabetes? To answer this question, the authors explore the effects of extrinsic and intrinsic motivation during game play by analyzing six serious games in health education on the topic of diabetes. The games selected for this study are: Carb Counting with Lenny, Dex: Your Virtual Pet, Pancreas!, I Got This, Packy & Marlon, and Captain Novolin.

As a work-in-progress, the authors provide evidence using the Self-Determination Theory (SDT) and the constructs of motivational affordances. The characteristics in SDT were identified as competence, relatedness, and autonomy. In addition, the author’s research explores motivational affordances found in these health education games namely: psychological outcomes: motivation – keeping the player engaged, attitude – the effect of solving a problem or challenge, and enjoyment – a behavioral outcome produced by competition, play, and achievement. Behavioral outcomes: achievement – attaining success, learning evidence – gaining new knowledge (learning outcome), participation – player immersion in the game objective or story. The authors present their findings and identify, compare, and contrast gamification and the motivational affordances found in each game.

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